

## Demonstration on Cabbage Production with Plastic Mulching in Tirap District of Arunachal Pradesh

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**ARTICLE ID: 26**

In India the total area under vegetable production is 10.26 million ha with total production of 184.40 million tones. The top three highest producing states of India are- Uttar Pradesh (15.40 %, 283.16 million tons), West Bengal (15 %, 276.95 million tonnes) and Madhya Pradesh (9.5%, 175.48 million tonnes) respectively. The total area of the Arunachal Pradesh is 2.6 million tones and production is only 16.6 million tones. The Arunachal Pradesh is a state which maximum population is engaged in agricultural & allied activities for their livelihood. The topography of Arunachal Pradesh is undulating, so productivity is low of all crops. So, the need of moment is to increase the productivity/unit land by applying technical knowhow.

Soil temperature is modified by mulches to various degrees. Plastic mulches warm the soil more quickly, increasing early plant development in the cooler months. However, under high temperature conditions during the summer, plastic may warm the soil to temperatures that might be deleterious to plant growth. Organic mulches act as insulation, helping keep soil cooler and, therefore, should be applied in the hot seasons.

This technology allows modifying the growth medium and increase the yield and quality of the harvested products. In this regard, the modification of the soil environment through mulches directly impacts the development and growth of crops . This is a result of the fact that, depending on the type of mulch, temperature, humidity and some physical and biological properties of the soil are modified. Plastic mulches of different colors and organic mulches from harvest residues are usually used.

In Tirap district of Arunachal Pradesh, during summer & winter seasons, the temperature is high (ranges from 28<sup>0</sup>C- 35<sup>0</sup>C), so during this season plastic mulches can adversely affect to crop. Meanwhile the winter season dry, deficit in soil moisture status,

weed occurrence is very high thus resulting low yield of all crops reported by KVK Tirap. Keeping all these facts, we decided to conduct Front Line Demonstration in winter seasonal crops. We conducted the 20 demonstration on 20 farmers field; having an area of 01 ha in 06 different villages during the Rabi season, 2017-18. Before conducting the demonstration, KVK Tirap tested this technology as On Farm Testing (OFT) during 2016-17 at 05 locations; having an area of 0.10 ha. The result recorded positive of the OFT.

**Table no- 1: Effect of mulches on cabbage yields**

Parameters	Treatment	
	Farmers practice	Black Polythene
Weed infestation (%)	34.32	00.67
Gross weight /plant (kg)	0.98	02.51
Marketable weight/plant (kg)	0.69	02.24
Days of maturity	82	90
Gross yield (t/ha)	59.78	136.69
Marketable (t/ha)	137	182
Increase in yield (%)	-	32
Cost of Cultivation (Rs/ha)	46,000	98,000
Gross Return (Rs/ha)	2,74,000	3,64,000
Net Return (Rs/ha)	2,28,000	2,66,000
B:C ratio	5.95	3.71



**Demonstration plot of cabbage with plastic mulching**

From table no-1, it is clear that the farmers practices has heavily infested (34 %) by weeds while demonstration plots had only 0.67 % weed infestation. This could result the completion for water, nutrients, minerals, solar radiation etc. Similarly, the yield resulted 137q/ha of farmers practice as while demo plots yielded 182 q/ha; which is 32 % higher yield over farmers practice. Similarly the gross return (Rs.2, 74,000) and net return (Rs. 2, 28,000) of farmers practice was too low as compared demonstration plots (Rs. 3, 64,000 and 2, 66,000 respectively).

